

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

## BACKGROUND OF THE INVENTION

The Improved Feed Port for Pneumatic Projectile Devices is designed to allow existing projectile devices with standard feed mechanisms, (the method for loading a projectile from a magazine into the breech of the device gun and commonly referred to in the industry as direct feeds and powerfeeds, depending upon the orientation of the feed port to the breech) to utilize new and emerging technologies which move the paintball magazine from a top loading, gravity-based feed mechanism to a bottom or side feed pneumatic and/or mechanically based feed mechanism.

Direct feed systems can take one of several configurations. However, each direct feed system currently on the market or which is a reasonable variation thereof, comprises the following features:

The axis of the direction of the feed is not parallel to the axis of the paintball gun's barrel. The projectiles drop directly into the breech from the feed and flow into the breech in the same direction as the main axis of the feed.

The feed is oriented to the breech so that when the paintball gun is held in a normal firing position, the breech is below the feed

Power feed systems can take one of several different configurations. However, all configurations and variants thereof share the following features:

The axis of the direction of the feed is not parallel to the axis of the paintball gun's barrel  
The projectiles pass through the feed in a direction which is off-center from dropping  
directly into the breach and therefore must, under the influence of a device placed in the  
powerfeed, change direction in order to enter the breach.

Because of the different designs of the existing (and anticipated) feed methods, the multi-  
purpose feed adapter must necessarily be configured in several different ways in order to  
function properly.

Furthermore, it is anticipated by the designers that others may wish to modify  
existing projectile devices to operate in a manner similar to that as provided for in this  
application. In anticipation of that, a method for modifying existing guns to incorporate a  
non-gravity based feed system is included here.

#### SUMMARY OF THE INVENTION

Therefore, the improved feed port for pneumatic projectile devices has been  
designed to incorporate the beneficial features of a variety of different, previously utilized  
devices, enhances the utility of such devices by allowing to be moved into different  
configurations and providing the feed port with the ability to accommodate new and  
emerging technologies which may or may not use gravity as their method of feeding  
projectiles into the breech.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure A shows a top view of a conventional pneumatic projectile device, and references the location of a feed port () in a vertical configuration in relation to the receiver and breech of the pneumatic projectile device and feed port in a side or 'straight feed mounting.

Figure B shows a top view of a conventional pneumatic projectile device with a feed port and a bolt (in shadow) extended to reach past the feed port and seal the breech.

Figure C shows the Improved Feed Adapter mounted on the forward end of the receiver, the barrel mounted to the forward end of the Improved Feed Adapter, the ability of the adapter to move the location of the feed port and the set screw used to retain the housing in a fixed position.

Figure D shows pneumatic projectile device receiver in an alternate embodiment of the device, fitted into a cavity in the body of the receiver.

Figure E shows the preferred embodiment of the device illustrating the movement of the feed port, the housing containing the feed port aperture, the barrel fixed to the front of the feed port and the set screw for retaining the feed port in a fixed position.

## DETAILED DESCRIPTION

Figure E illustrates one preferred embodiment of the device and shows the pneumatic projectile device body **15** attached via a threaded adapter **55** to its front end, the movable collar **40** attached to the threaded adapter **55**, the forward adapter **55** into which the barrel **10** is attached, the feed tube attached to the aperture **20** and the set screw **45** which passes through the adapter and makes contact with the surface of collar **40** and prevents movement thereof.

In use, the adapter unit **55** is threaded onto the receiver of a pneumatic projectile device **15**, after which the barrel **10** is threaded onto the forward portion of the adapter **55**, the barrel **10**, the housing **55** and the receiver **15** becoming a single unit. The set screw **45** is then backed out, allowing the housing **40** to be rotated until the feed port aperture **20** is in the desired location, after which the set screw **45**, is tightened to prevent further movement of the housing **40**.